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A STUDY OF HEMATOPOIESIS IN A GROUP OF FEMALE STUDENTS AGES FIFTEEN* TO TWENTY-THREE YEARS THROUGH A STUDY OF GASTRIC SECRETIONS AND CORRELATED BLOOD COUNTS. (A CONTINUATION).

From the Clinical Laboratories of St. Mary's Hospital in conjunction with College of St. Scholastica, Duluth, Minnesota

By SR. M. ALCUIN ARENS, O.S.B., M.T., B.S., R.N, M.S.

This paper is a report on the continuation of a survey made to correlate the acidity of the gastro-intestinal tract with the condition prevalent in the blood stream. The test subjects were female students between the ages of fifteen and twenty-three years inclusively. There were 123 participants, 23 of whom were repeaters from an initial portion of this study made and published September, 1941.[1] Each participant was given, upon an empty stomach, a test meal consisting of 8 arrowroot cookies and 400 cc. water. The gastric contents were expressed after an average of 45 minutes of digestion. Simultaneously with the expression of the stomach contents, hemoglobin determinations and red cell counts were made. In every instance the blood was checked a second time after a month's interval, and where discrepancies occurred, rechecking continued until results appeared satisfactory.

The equipment for the blood determinations and the method of analysis of the gastric expressions were identical with those of the previous study. The gastric expression was made by means of a

* With the 15 years old subjects were tabulated 4-14 years and 2-13 years old females.

rubber catheter, gauge 16, passed by way of the mouth into the most dependent part of the stomach. To the upper end of the catheter was attached a 100 cc. glass Luer syringe. In those instances in which the test subjects were achlorhydric to the cookie meal, if the subjects were willing, confirmation was made by histamine injection.

In attempting a correlation between the acidity of the stomach and the hemoglobin level of the blood stream, a review of some of the foremost work done by others with Ewald test meal experimentation seemed necessary to evaluate properly the test meal data of this experiment. Table 1 summarizes within limits the salient features of the several reports reviewed:

TABLE 1

EWALD TEST MEAL EXPERIMENTATION

Experimenters	Test Subjects	Test Meal Data:
Keefer, et al.[2] Johns Hopkins, 1926	1500 cases from medical wards, male and female 10-81 years.	Gastric expression made "45 minutes-1 hour after ingestion of Ewald test meal."
Vanzant, et al.[3] Mayo Clinic, 1932	3,746 "Normal" records mostly from Mayo Clinic files.	Gastric expression made 1 hour after ingestion of test meal standard to the present experiment.
Note—The diagnoses of most of the accepted "normals" were fatigue, anxiety, neurosis, migraine, constipation, irritable bowel, mucous colitis, and "negative" findings. These diagnoses are mentioned for some of them are probable factors to be discussed later affecting true values for gastric acidities.		
Gaither[4] Johns Hopkins, 1932	100 pathological cases, a cross-section of dispensary cases.	Gastric expression after 45 minutes digestion of test meal of 1 slice unbuttered toast, a "glass" of cool water.
Sagal, et al.[5] New York, 1933	6,679 cases seen at a doctor's office or clinic, who complained of gastro-intestinal symptoms corresponding to the Mayo group and hence as "normal" as those.	Gastric expression after 45 minutes of digestion of test meal of 4 Uneeda biscuits and 2 "glasses" water.

The 123 young women of this study were apparently normal. They lived in an educational institution with regularity in their habits of nutrition, study, and recreation.

In revewing the experiments just enumerated it was found that Gaither and Keefer were not working primarily to give normals for gastric expressions; Vanzant and Sagal were; but each contributed some factor that threw light on the interpretation of the data of this study. Since the larger studies devised to establish normals included males and females of variable ages, selection of data applying only to females of the age span of this study were made, and where the experimenter's age groupings differed considerably from the present study, approximations to the age span were used.

Table 2 compares the findings of the Rochester (Mayo Clinic) and Duluth (present study) groups in terms of the number of cases showing varying degrees of free hydrochloric acid (Töpfer's degrees) for split age spans of the period under observation.

TABLE 2
FREE HYDROCHLORIC ACID IN FEMALES,
CASE DISTRIBUTIONS COMPARED

Ages in years		15-19 inc.		20-23 inc.*	
		Rochester	Duluth	Rochester	Duluth
No. of cases		42	81	90	36
Free acid	1- 9	2	1	2	1
	10-19	6	24	17	12
distribution	20-29	11	28	14	14
	30-39	10	13	32	4
in	40-49	7	10	13	3
	50-59	4	5	8	2
degrees	60-69	2		4	

* Rochester's age span 20-24 years. Note—Achlorhydrics treated separately elsewhere.

Figure 1 shows the same information as Table 2 except that the graphings are case distributions expressed in percentage.

The polygons in Figure 1 of the Duluth group do not coincide with those of the Rochester group. While there is greater similarity for the younger span (15-19 years) the divergence is more marked in the older. Here the shift to the right in the Rochester polygon

indicates a greater percentage showing higher free acid values in the Duluth study. Since only time varied, it may be that the difference in the additional 15 minutes of digestion in the former group is accountable for the apparently higher acid values.

Table 3 is essentially Table 2 with these two exceptions that it embodies the data of the other workers who were designing at least secondarily to give gastric normals, viz., the New York group. The findings are expressed in terms coined by them to apply to the four major classes into which they feel the human race can be divided normally on the basis of free and total gastric acids. The terms and the definitions as given by them are: *Achlorhydric*, the group consisting of those showing no free hydrochloric acid; *subacidic*, those showing less than 20° free and less than 40° total acid; *normal*, those having 20-40° free and 40-60° total acid; and *hyperacidic*, those with more than 40° free and more than 60° total acid.

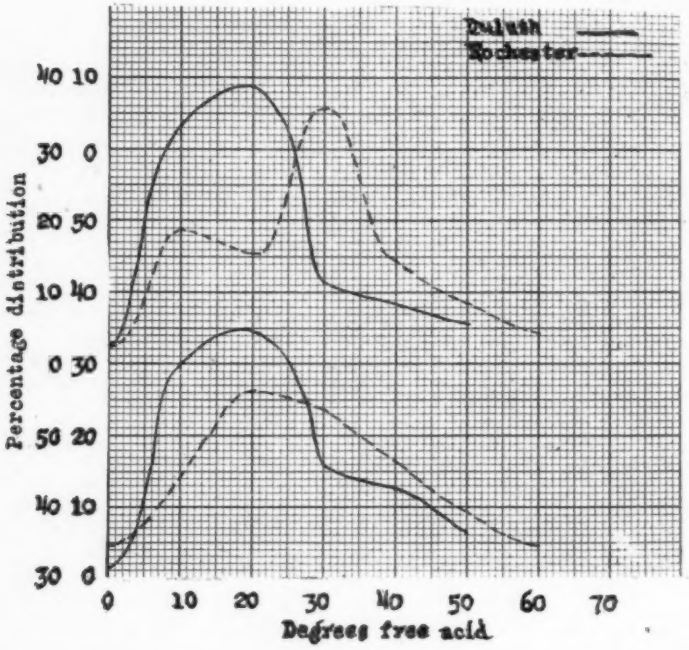

Fig. 1—Free acid percentage distribution in females compared.
*Vertical line represents Duluth achlorhydrics. (Not included in polygons)

TABLE 3
PERCENTAGE DISTRIBUTION OF APPARENTLY NORMAL EWALD TEST MEAL VALUES COMPARED

	Duluth*	New York*	Rochester**
Ages in years	15-23	11-20	15-24
No. of cases	123	216	138
Percentage distribution:			
Subacidics	32	22	21
Normals	51	48	50
Hyperacidics	17	30	29

*Digestion—45 minutes. **Digestion—60 minutes.

Note—Achlorhydrics treated separately elsewhere.

It becomes obvious from Table 3 that if the New York group findings had been graphed in Figure 1, the polygons developing would have nearly coincided with those of the Rochester group. Again the Duluth group becomes a variant. Since the digestion periods for the New York and Duluth groups were identical, the variation in acid values here must be accredited to other factor or factors. Attention was given in this study to some of the factors which might possibly vitiate true normal gastric values.

Dilution and neutralization.—To watch what effect the original test meal fluid had in diluting the secretions of the stomach and to study neutralization of gastric secretion by such factors as the buffers of the meal, the saliva and regurgitated fluid, an experiment was devised. In this seven students participated, using the standard cookie meal as a stimulus. The routine of the test was the same for each subject:

Period of fast: 16 hours.

Position during test: semi-recumbent.

Change of position during gastric expression: (1) posterior, (2) left, and (3) right and semi-recumbent.

Test meal: 8 arrowroot cookies and 400 cc. water.

Number of gastric expressions: (1) fasting specimen, (2) complete evacuation of meal immediately after ingestion, (3) 3 fractionations subsequent to (2) at intervals of approximately 15 minutes (not uniform because the ease with which the meal was aspirated and re-fed differed).

Treatment of each specimen: (1) volume measured and recorded; (2) 1 and sometimes 2 aliquots of 10 cc. retained and analyzed, and balance of meal re-fed except in case of fasting specimen when the specimen was discarded after analysis.

Precautions taken: during the fractionation the equipment contacting the meal and the meal itself were kept as nearly as possible at body temperature.

Table 4 and Figures 2 through 8 illustrate the findings on these seven volunteers. The recorded secretory activity as interpreted by the degrees of free hydrochloric acid shows a rising curve, but in the greater number of cases the acid value of the fasting stomach alone is not reached even after an hour or more. Dilution is the factor vitiating the acid values, for the peak in the graph line of volume becomes the greatest dip in the graph line of acidity.

Neutralization and buffering by the test meal itself and secretions from above and below the stomach are probably equally as significant. This Bloomfield and Keefer[6] uniquely showed in several experiments. One was devised to represent a slowly emptying stomach. For this they used a beaker in which they macerated two pieces of toast with 500 cc. of water. At intervals they added 20 cc. of N/10 hydrochloric acid and titrated aliquots from the beaker for free and total acids. In spite of the uniform addition of acid no free hydrochloric acid was demonstrable until approximately 100 cc. of N/10 hydrochloric acid had been added. Thereafter there was a steady increase in acidity; the only removal of beaker contents was the 10 cc. aliquots for titration. In a similar experiment they devised a moderately fast emptying stomach by removing 100 cc. of the test meal at intervals before the addition of the acid. In this a value of 37° free hydrochloric acid was reached at a point when in the previous experiment free hydrochloric acid was just beginning to appear.

Similar experiments by Bloomfield and Keefer with tap and distilled water alone yielded analogous results except that owing to the absence of buffer effect of test meal and saliva, "free" hydrochloric acid appeared sooner.

Gaither, experimenting with his 100 pathological cases, recognized these same factors but only to draw somewhat contradictory conclusions, viz., the swallowing of saliva, contamination and neutralization of gastric juice by the meal itself, or regurgitation of duodenal contents do not markedly or effectually alter the result of the test. However, from the experimental evidence offered by Bloomfield and by the work of this study, these factors do make a significant alteration in the values of at least normal gastric findings.

TABLE 4

FRACTIONAL TEST MEAL DEMONSTRATING FALSE ACID VALUES

Case No.	Minute time interval	Cc. vol. recovered	Cc. vol. refed	Degrees free acid	Degrees total acid
7	Fasting	33	..	26.7	41.2
	0	400	380	0.0	4.3
	16	225	215	0.0	19.0
	41	165	145	11.5	44.0
	61	35	..	12.0	43.5
26	Fasting	25	..	31.0	60.0
	0	400	380	0.0	7.0
	15	150	130	2.0	28.0
	40	80	60	21.5	44.5
	60	7	..	24.0	60.0
27	Fasting	22	..	43.5	65.5
	0	400	380	0.0	10.0
	15	235	215	16.5	26.5
	45	175	155	21.0	38.5
	75	75	..	22.0	54.0
28	Fasting	50	..	40.0	57.7
	0	400	380	0.0	7.0
	15	315	295	13.0	26.0
	40	300	280	27.5	48.0
	65	240	..	34.0	55.5
101	Fasting	50—(Bilish)		0.0	40.0
	0	400	380	0.0	7.0
	20	50	30	14.0	34.0
	40	75	55	16.0	38.0
	57	90	..	25.5	50.5
102	Fasting	25—(mucus)		0.0	..
	0	400	380	0.0	7.0
	20	150	140	0.0	14.0
	34	120	100	0.0	14.0
	55	80	..	0.0	12.0
104	Fasting	55—(Sl. bilish)		38.0	53.0
	0	400	380	0.0	4.0
	18	180	160	0.0	10.0
	40	65	45	13.0	29.5
	55	40	..	24.0	44.0

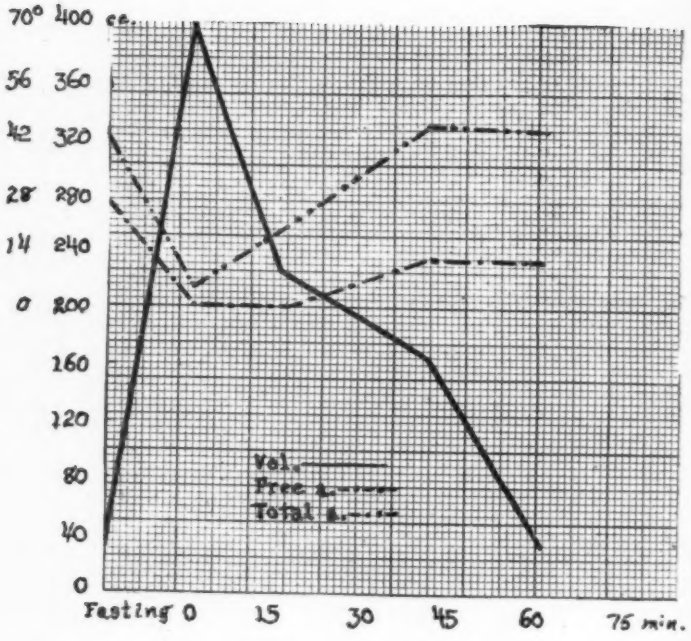

Fig. 2.--Case No. 7 (See Table 4.)

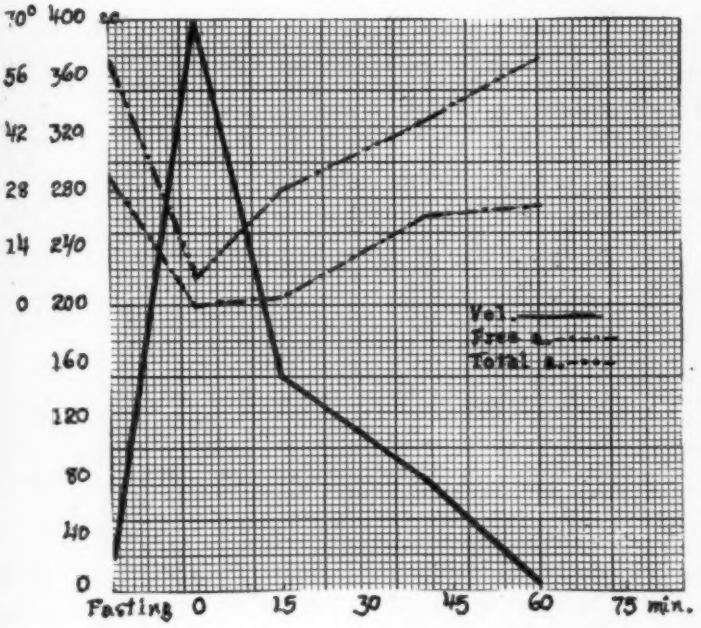

Fig. 3.--Case No. 26 (See Table 4.)

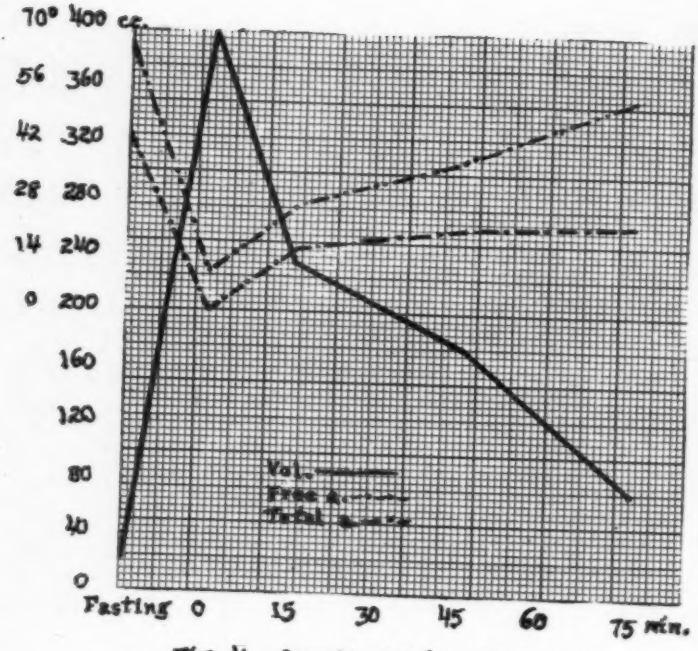

Fig. 4.--Case No. 27 (See Table 4.)

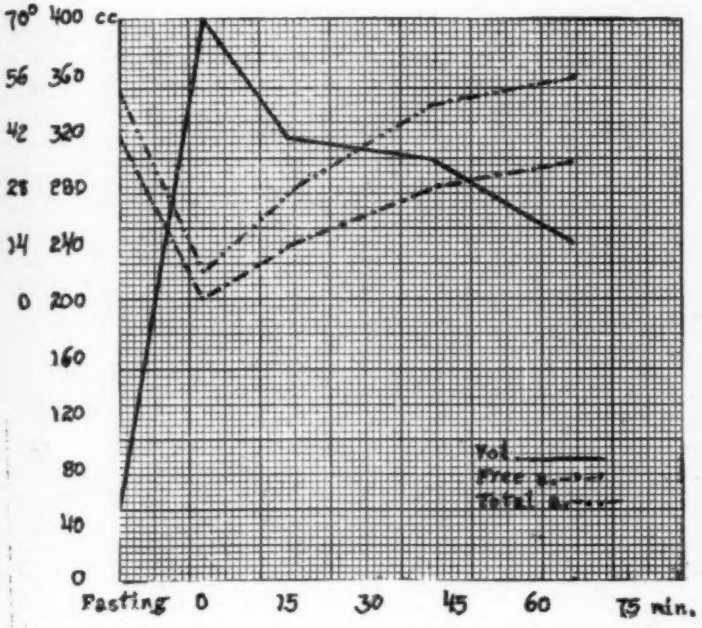

Fig. 5.--Case No. 28 (See Table 4.)

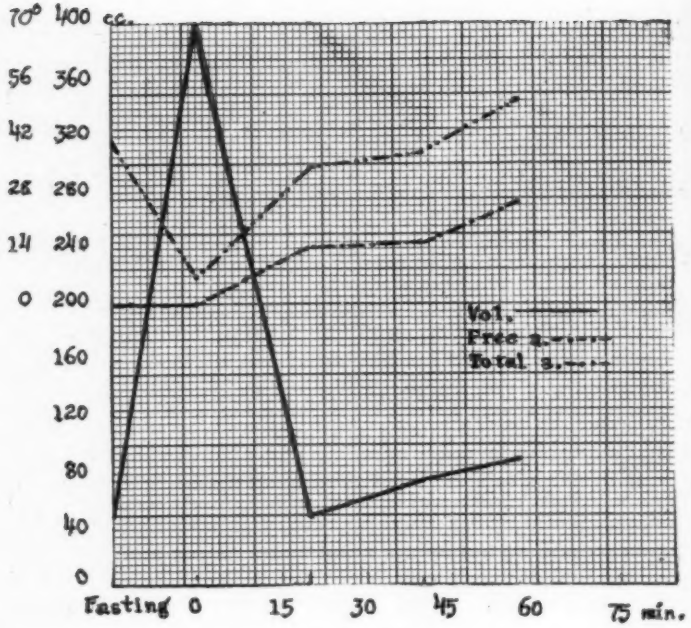

Fig. 6.—Case No. 101 (See Table 4.)

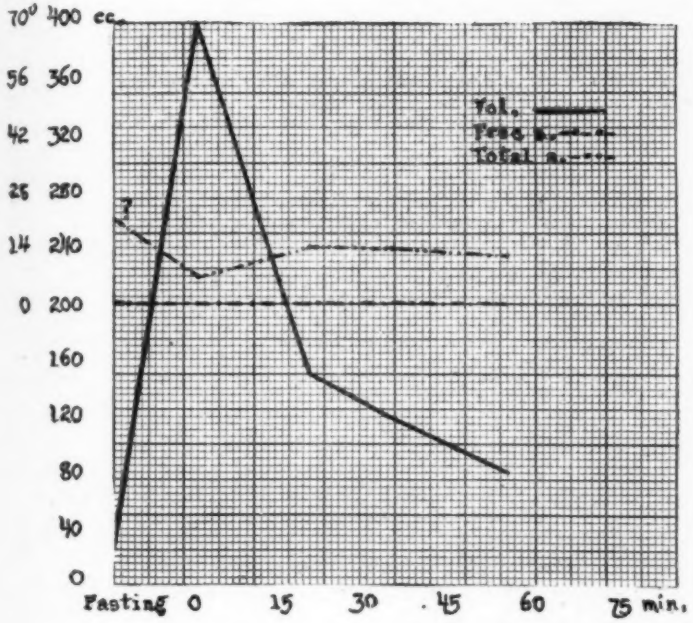

Fig. 7.--Case No. 102 (See Table 4.)

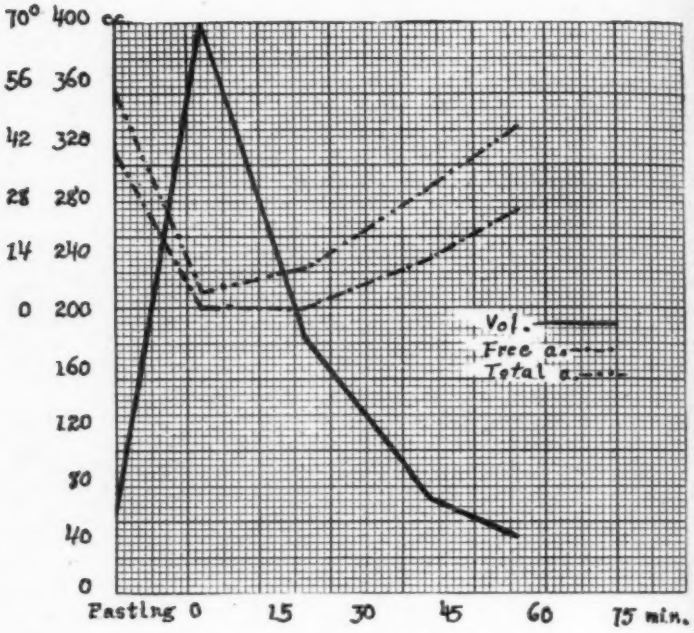

Fig. 8.--Case No. 104 (See Table 4.)

Motor activity.—The motor activity of the stomach and its bearing upon the volumes were studied by Bloomfield and Polland in an objective experiment.[7, 8] From their work they found three types of stomachs on the basis of emptying time, viz.,

Class I, emptying in 20-30 minutes,
Class II, emptying in 20-60 minutes, and
Class III, emptying in more than 60 minutes.

They asserted that about 1/3 of all the stomachs belong to Class I, the greatest fraction to Class II, and the least fraction to Class III.

In this study, judging from the volume curves found, a review of Table 4 and Figure 2 reveals three types of stomachs; Cases 101 and 104 fall into the first class; Cases 7, 26, 27, and 102 seem to be

in the second class, and Case 28 is in a class of its own. Table 5 supplies data that make possible the following percentage distribution in the classes: Class I, 21 per cent; Class II, 74 per cent; and, Class III, 5 per cent. These findings are similar to those of Bloomfield.

Repetition and psychogenic factors.—Table 5 also serves to show how far a test subject can be "trained" to give consistent results under identical test procedures and circumstances. This table gives the acid and volume values of repeated gastric expressions under similar conditions, but at varying intervals of time. In the literature there seems to be no uniformity of opinion about the individual's gastric secretory variations upon repeated testing under identical conditions.[2, 5, 9, 10, 11] Assuming as true the conclusion drawn by van Liere[12] from his experimentation that an additional 100 cc. of water does not alter the emptying time of the stomach significantly (hence no dilution effect), the findings of this experiment indicate there are individual variations both in motor and secretory activity and that these variations occur not only from year to year (as might be expected) but even within relatively short intervals. This is also the opinion of Bloomfield and Alvarez, *et al.*[13] the latter thinking it to be particularly true of the "nervous, impressionable, and temperamental persons who react too much to their environment." Case 102 of this study seemed to be a good illustration of this temperamental change on repeated expression. The first expression was made by passing the catheter through the mouth with seeming comfort to the student. The free acid was 18° in this determination. Nine weeks later the catheter was passed nasally with the student manifesting an unusual amount of apprehension and dislike. The free acid value was 0° with a marked decrease in the volume. There seemed to be no explanation for this result except some psychogenic factor. Recognition of psychogenic factors altering acid values is given in Schindler and collaborator's review of functional causes of achlorhydria.[14] Here there is specifically mentioned such mental states as fear, dislike, and joy. From this it follows that repeated gastric expressions on the same individual under identical conditions do not always "train" the subject, so that consistent and representative experimental data can be obtained.

TABLE 5

ACID AND VOLUME VALUES ON REPEATED GASTRIC EXPRESSIONS ON THE SAME INDIVIDUAL

Subject	Date	Vol. in cc.	Degrees Acid Free	Total	Subject	Date	Vol. in cc.	Degrees Acid Free	Total
7	2-18-41	60	0	22	46	2-28-41	275	20	46
	3-17-41	265	0	11		2-10-42	85	55	76
	2-26-42	190	11	33	50	2-28-41	235	8	22
	1-22-42	145	12	44*		3-6-42	250	13	26
12	2-19-41	290	20	37	61	3-5-41	215	5	20
	3-9-42	100	20	33		3-12-42	205	15	34
17	2-20-41	233	0	17	62	3-5-41	235	14	26
	2-19-42	215	10	21		3-12-42	170	15	32
18	2-20-41	215	4	24	63	3-5-41	235	13	26
	3-9-42	240	22	40		3-3-42	130	29	53
22	2-21-41	205	16	27	71	3-7-41	200	17	31
	2-12-42	210	30	43		3-25-41	115	26	38
23	2-21-41	185	12	29		3-12-42	90	33	52
	2-13-42	140	23	42	73	3-7-41	310	19	35
27	2-24-41	350	13	26		3-16-42	135	17	34
	2-9-42	230	12	45	77	3-10-41	100	27	45
	4-15-42	155	21	39*		3-12-42	180	28	46
28	2-24-41	295	12	28	85	3-11-41	240	22	29
	2-10-42	240	25	45		3-9-42	180	24	39
	4-28-42	240	34	56*	88	3-12-41	200	22	34
31	2-25-41	160	14	36		3-3-42	120	32	52
	3-19-41	245	9	18	89	3-12-41	400	8	20
	3-31-41	240	10	24		3-27-41	250	24	36
	2-10-42	195	5	30		3-3-42	160	13	29
32	2-25-41	260	13	36	101	2-9-42	155	28	43
	3-31-41	145	25	36		4-16-42	90	26	51*
	3-6-42	225	22	43	102	2-9-42	195	18	35
34	3-3-41	185	26	43		4-16-42	89	0	12*
	2-11-42	50	44	64	104	2-10-42	80	23	42
						4-21-42	40	24	44*

*Graphed in Figure 2.

(Cases 7 and 50 had an appendectomy between 1941 and 1942 determinations).

Time of appearance and intensity of maximum gastric secretions. —In a histamine experiment to be discussed in another paper, it is shown that the stomach does not begin to produce maximum gastric secretion immediately, but that the interval at which the maximum

secretion is reached, and the intensity of this maximum is distinctly different for every individual. From this the inference is made that the same is true except in a milder degree when food is the stimulus.

Conclusion.—Hence it follows that caution should be used in interpreting the so-called "secretory curves" after the administration of a test meal, unless such otherwise unknown variables as the dilution, buffering and neutralizing of the test meal; the moment of maximum gastric secretion and the intensity of the maximum gastric secretion; the functional state of organs or systems beyond the gastro-intestinal tract (Vanzant and Sagal with their collaborators disregarded this); the speed of gastric emptying; and, the individual's psychological state are known at the time of testing. In any literature reviewed on Ewald test meal experimentation no such caution in its entirety seems to have been taken in establishing normals, nor was any greater caution paid these factors in this study except the test subjects were not recruited from a health clinic.

Recommendation.—For the purposes of correlation with some other function it would seem that normals for gastric secretion should be built from data obtained from use of a standardized procedure that insures an empty stomach secreting pure gastric juice as a result of a powerful stimulus properly administered.

Correlation.—However the hematological and gastric secretion data that are accumulated in this study, Table 8, were correlated. The first correlation was made by plotting the hemoglobin in grams per cent against the degrees of free hydrochloric acid. (Scattergram Figure 9.) The coefficient of correlation was found to be a positive 0.1024. A year ago[1] when the period of digestion was less cautiously controlled the coefficient of correlation, again plotting hemoglobin against acidity, was a positive 0.0045. It follows, therefore, from both studies that any alteration in the gastric acidity reflects an alteration in the same direction in the hemoglobin content of the blood stream but this correlation is obviously very insignificant in the age span of the sex studied.

Achlorhydric and hematogenous anemias.—The above-stated degree of correlation is almost synonymous with saying an achlor- or hypochlorhydric anemia is not an entity for normal females in late teens and early adult life. When the condition apparently exists, the

twenty or more conditions with which low acids are symptomatically associated must be ruled out first. Yet Apperly[15] and Alvarez[16] recognize a "hematogenous achlorhydria." In plotting a graph from the Rochester workers[3] showing relationship of acidity to age for each sex singly, against his graph showing the oxygen combining power (hemoglobin values) for the same ages and sexes, Apperly produced a curve, which, when he made due allowance for considerable scattering of cases, indicated: (1) A positive straight line relationship between gastric acidity and hemoglobin content (or accidents causing hemoglobin differences) and, (2) A probable development of achlorhydria when the hemoglobin content fell below "two-thirds normal value." (This may mean 9-10 grams.)

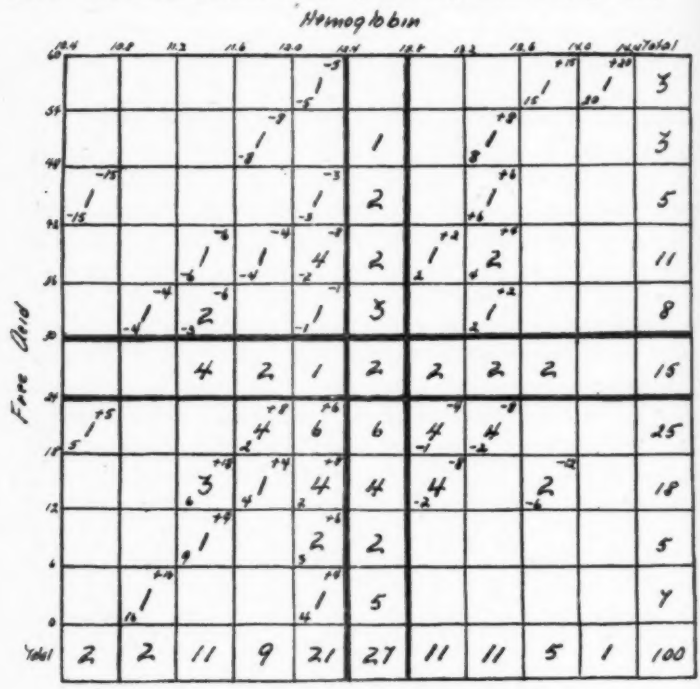

Fig. 9—Scattergram of cases, plotting free acids against hemoglobin.
Coefficient of correlation positive 0.1024.

TABLE 6

Case No.	Age yrs.	Hb gm.%	R.B.C. mil.	Gastric Secretion Vol. cc.	Free acid °	Total acid °	Case No.	Age yrs.	Hb gm.%	R.B.C. mil.	Gastric Secretion Vol. cc.	Free acid °	Total acid °
7	21	11.9	4.1	190	11	33	125	20	12.9	4.3	220	10	27
12	21	12.5	4.3	100	20	33	126	18	11.6	4.2	100	25	46
17	21	11.6	3.9	215	10	21	127	22	12.0	3.9	300	18	25
18	20	10.8	4.3	240	22	40	128	18	11.8	4.0	Inc.	22	42
22	23	13.3	4.5	210	30	43	129	18	11.5	3.9	215	27	47
23	20	11.9	4.0	140	23	42	130	18	14.0	4.4	Inc.	55	75
26	20	12.9	4.1	180	34	51	131	19	12.0	3.8	Inc.	18	37
27	19	11.5	4.1	230	12	45	132	18	10.5	3.7	120	46	65
28	19	11.4	3.6	240	25	45	133	19	11.6	4.2	230	36	51
31	21	13.6	4.4	195	0	30	134	19	13.8	4.8	245	55	75
32	21	11.2	3.9	225	22	43	135	19	11.4	4.2	Inc.	40	61
34	18	12.5	4.2	50	44	64	136	18	12.5	4.1	65	0	21
46	21	12.7	4.1	85	55	76	137	18	12.1	4.1	300	14	30
50	19	11.9	4.1	250	13	26	138	18	12.0	4.1	135	22	49
61	17	11.5	3.9	205	15	34	139	17	12.3	4.4	230	11	26
62	16	12.2	4.2	170	15	32	140	19	12.5	4.1	155	32	52
63	16	13.6	4.7	130	29	53	141	20	13.6	4.6	200	15	28
71	16	12.2	4.2	90	33	52	142	18	12.6	4.6	125	29	56
73	22	12.2	3.9	135	17	34	143	18	12.5	4.5	150	45	67
77	16	12.1	4.2	180	28	46	144	18	12.3	4.3	Inc.	24	40
85	15	12.4	4.2	180	24	39	145	18	10.8	4.0	125	33	56
88	17	12.1	4.1	120	32	52	146	19	12.7	4.5	220	17	35
89	17	12.1	4.3	160	13	29	147	19	12.6	4.4	190	36	56
101	21	12.8	4.3	155	28	43	148	20	11.5	4.4	125	17	31
102	21	12.5	4.1	195	18	35	149	20	11.5	4.4	70	28	49
103	20	13.2	4.5	90	35	65	150	19	12.2	4.3	Inc.	10	22
104	20	12.4	4.7	80	23	42	151	23	12.3	4.3	Inc.	0	26
105	20	12.3	4.2	80	20	41	152	22	13.5	4.6	120	26	45
106	19	12.2	4.0	100	37	56	153	17	12.3	4.0	Inc.	40	55

Table 6 continued on next page

Case No.	Age yrs.	Hb gm.%	R.B.C. mil.	Gastric Secretion Vol. cc.	Free acid °	Total acid °
107	20	12.5	4.4	125	0	34
108	20	12.4	4.1	240	23	43
109	21	12.2	4.2	75	15	40
110	20	11.0	3.7	280	5	20
111	19	11.8	4.0	160	28	54
112	19	11.5	3.9	130	24	50
113	19	12.3	4.2	200	40	64
114	18	12.8	4.4	350	17	28
115	18	11.5	3.9	360	6	23
116	22	12.3	4.3	120	57	76
117	22	12.5	4.3	70	45	66
118	18	13.0	4.4	Inc.	17	36
119	18	11.8	4.1	200	19	35
120	19	12.5	4.2	120	35	55
121	18	12.3	4.4	210	19	29
122	21	12.4	4.1	100	0	16
123	21	11.3	4.0	105	32	46
124	20	12.5	4.3	110	17	37
172	13	12.6	4.4	205	22	45
173	17	12.0	4.1	120	21	45
174	14	13.2	4.4	130	28	51
175	16	12.4	4.0	110	17	41
176	16	11.8	4.0	125	17	36
177	15	13.0	4.5	Inc.	20	35
178	17	12.6	4.5	130	0	25
179	19	13.2	4.7	65	19	42
180	18	13.0	4.4	80	27	43
181	21	12.8	4.4	—	15	26
182	16	13.2	4.5	240	20	31
183	15	11.4	3.9	165	35	53
184	15	12.0	4.1	130	37	50
185	15	12.8	4.4	150	20	40

Case No.	Age yrs.	Hb gm.%	R.B.C. mil.	Gastric Secretion Vol. cc.	Free acid °	Total acid °
154	23	11.5	3.7	155	26	46
155	18	12.7	4.2	210	20	42
156	19	11.2	4.0	120	13	31
157	19	10.4	3.7	220	21	35
158	19	13.3	4.6	80	40	66
159	17	12.0	4.3	182	32	50
160	20	12.0	4.0	225	13	28
161	20	11.8	4.2	235	20	39
162	20	11.6	4.2	165	23	44
163	16	11.6	4.0	Inc.	50	74
164	17	13.0	4.2	130	21	52
165	17	12.6	4.0	100	53	80
166	18	12.6	4.3	285	10	25
167	19	11.5	4.0	220	13	27
168	15	12.9	4.5	120	20	36
169	15	12.1	4.3	Inc.	12	25
170	15	13.3	4.5	170	22	42
171	15	12.6	4.4	145	33	55
186	14	13.2	4.6	100	38	70
187	13	12.8	4.4	100	15	31
188	14	12.3	4.2	80	42	64
189	17	12.5	4.3	130	26	49
190	17	13.3	4.5	130	52	74
191	15	12.5	4.3	Inc.	41	63
192	14	12.4	4.2	135	12	26
193	15	13.0	4.5	130	40	63
194	16	13.6	4.8	180	26	45
195	14	12.5	4.1	140	23	45
196	14	13.2	4.3	250	21	33
197	20	13.2	4.3	160	45	65
198	17	12.4	4.24	25	0	0
199	20	13.7	4.3	100	29	51
200	17	13.7	4.3	250	17	325

Close scrutiny of the isolated fraction of Apperly's graph line as applied to females of the late teen and early adult life raises the question whether they are not subject to still more experimentation. The acidity coordinate represented data on a small number of subjects and was for the most part borrowed material, gleaned from the literature and not Rochester confirmed.

Alvarez and Vanzant used their own data from 1,900 men between the ages of 42 and 60 years; and 1,696 women between the ages of 38 and 72 years. They noticed especially in men a marked positive correlation between acidity and hemoglobin. When hemoglobin values were less than 12 grams the mean gastric acidity fell off sharply and the incidence of achlorhydria rose rapidly. They offer no data for females ages 15 to 23 years.

Summary.—A study has been made in hematopoiesis on a group of 123 healthy females ages 12-23 years, through analyses of gastric secretions, and correlated blood counts. The values in gastric secretions were compared with significant work in the same field in other laboratories to find that "normal" values for gastric secretions are vitiated by a number of variables of more or less significance. Among these are dilution, buffering and neutralization of the test meal; the time of appearance and the intensity of maximum secretion; the functional state of organs or systems beyond the gastrointestinal tract; the speed of gastric emptying; and, the individual's psychological state at the time of testing. Unless these are known the findings for the Ewald test meal experimentation are not reliable.

The data of this report corroborate the conclusion of the 1941 study in that they again show that any alteration in the gastric acidity reflects an alteration in the same direction in the hemoglobin content of the blood stream but that this correlation is insignificant in the age span of the sex studied as the coefficient of correlation +0.1024 denotes.

The question of achlorhydric anemia and "hematogenous achlorhydria" is discussed.

Grateful acknowledgment is made to all those participating in this study, but particularly to Dr. E. L. Tuohy whose direction was always inspiring.

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STAINING TECHNIQUE WITH MECHANICAL TIMING AND CHANGING DEVICES

(Used at Mary Hitchcock Memorial Hospital, Hanover, N. H.
Technician: Eaton L. Bean)

Attempts to find an absolutely uniform staining technique of tissues led us to the use of a mechanical staining machine. With the following technique, we have had satisfactory results for the past four months. The tissues used have been fixed either in formalin or in Orth's solution. The brief time required for some of the steps necessitates the use of a timing mechanism which can be set at fractions of minutes. On the present schedule tissues are set to stain during the lunch hour. Time has been saved by this technique and entirely uniform results have been secured.

Before placing stain rack in mechanical device:

Dry on hot end of embedding table 1 hour or longer in rack and covered by cardboard box.

Deparaffinize in xylol — 5 minutes.

Absolute alcohol — 2½ minutes.

Blow 0.5% cellodin over sections and place directly into tap water in staining rack.

Place staining rack in mechanical machine.

1. Hematoxylin — 20 minutes.
2. Tap water — ¼ minute.
3. 1% acid alcohol — ¼ minute.
4. Tap water — 5 minutes.
5. Tap water — 10 minutes.
6. Eosin — 13 minutes.
7. 80% alcohol (To which has been added 4 cc. of 2% glacial acetic acid) — ½ minute.
8. 95% alcohol — 2 minutes.
9. Absolute alcohol — 2 minutes.

10. Carbol xylol — 3 minutes.
11. Xylol #1 — 2 minutes.
12. Xylol #2 — 15 minutes or to 1 hour.
13. Mount.

Stains used:

Hematoxylin used: Harris with 4% glacial acetic acid added. May be used for several months or until staining becomes weak.

Eosin used is 0.1% alcohol eosin with 8 cc of 2% glacial acetic acid added to each liter of stain. Make this from a stock of 1% easin in 70% alcohol.

General information about technique:

Change all tap water for each rack of slides.

Alcohol may be used for one month.

Acid alcohol may be used one month.

Carbol xylol filtered when dirty may be used several months.

Xylols may be used several months—when filtering use xylol #2 to fill xylol #1, using new xylol in xylol #2.

ACCIDENT PREVENTION IN THE LABORATORY

By CECELIA M. KORTUEM, R.N., M.T. (ASCP)

St. Vincent's Infant and Maternity Hospital, Chicago, Ill.

Accident prevention as an organized effort, was developed as a measure of efficiency and economy in industry. Business was amazed to learn that accidents accounted for a fairly large item on the debit side of its ledger, thereby cutting into profits and dividends. It realized that the principal causes of accidents were faulty mechanical equipment and *bad* practices and habits among personnel. Therefore safety departments were organized in many plants. Industry points with justifiable pride to the fact that industrial accidents have been reduced 50% in the course of 25 years. The general cause of accident prevention has been well served by good business sense in the management of industrial operations. Is it not possible to carry over into the laboratory that same good sense of accident prevention? A suggested accident prevention program has four definite objectives. These are: 1. TO SEE. Point out to the hospital authorities that they *may see* existing hazards. 2. TO ELIMINATE. Induce them *to eliminate* these hazards wherever possible. 3. TO SAFEGUARD. Caution *to safeguard* others when impossible to eliminate. 4. TO AVOID. Creating laboratory hazards can be avoided (a) by having more than one room for performance of laboratory tests, (b) proper fume hoods, acid cabinets, suitable sterilizers, disposal sewers, and centrifuges protected with covers.

Read at the January (1943) meeting of the Chicago Society of Medical Technologists.

—Revised and published by The Modern Hospital, Vol. 61, No. 2, Aug., 1943.

—Quoted in Surgical Equipment Publication for November-December, 1943. (Campaign for the Conservation of Glassware.)

ACTION IMPORTANT

There is too wide a gap between knowing the existence of accident hazards and doing something about them. Eliminate, or at least *safeguard TODAY. NOW!* Delay may be fatal. Establish improved habits and practices. HAVE A PLACE FOR EVERYTHING AND SEE THAT EVERYTHING IS IN ITS PLACE.

THE SERIOUSNESS OF THE PROBLEM

The seriousness of the accident problem is indicated by the large number of people who are killed, permanently or temporarily disabled, annually. More people were killed in accidents during 1937-'39 inclusive, than were killed or died of wounds in all the wars since 1775 and up to 1940. (Accidents were 290,000 as compared to wars 244,000).

ECONOMIC LOSS

Scientists state that the body aside from thought is worth 97 cents in elements.

> *"But man, proud man,*
> *Dressed in a little brief authority,*
> *Most ignorant of what he's most assured,*
> *His glassy essence, like an angry ape,*
> *Plays such fantastic tricks before high heavens,*
> *As make the angels weep."*

The value of life and limb in dollars and cents when removed from the payroll and added to hospital care, cause an accident to be extremely expensive.

NEWSPAPER ITEMS

Newspaper items of the laboratory or hospital accidents are very infrequent. In the first place they are seldom publicized because these accidents do not ADD to the popularity of a laboratory or hospital. There are many accidents and twice as many accident hazards. The law of averages provides that 1 out of 12 persons, is an accident going somewhere to happen.

APPENDIX:

1. FIRE AND BURN HAZARDS
   (a) gas burners of the drying ovens
   (b) Bunsen burner

(1) collodion (covering a cut or abrasion on the hand or finger and reaching across or working near the burner).
(2) long sleeves and head gear (caps, long fluffy hair, and head gear as worn by the religious).
(3) storage of burner (some workers store the Bunsen burner under a shelf and it may be burning when put away).
(4) leaky gas connections.

(c) matches
(1) smoking match (if dropped into waste bucket may fall inside of empty ether can, causing a terrific explosion. The shock of the noise of this explosion could cause most anything to happen).
(2) half burning match (catching fire to other rubbish in bucket).

(d) sunlight
(1) burning of microscope (reflection on the mirror of a microscope burned it almost beyond further use).
(2) table burn (reflection thru a solution in a Florence flask burned a hole the size of a half dollar and a center depth of quarter inch in the top of the work table).

(e) electric wiring
(1) defective equipment (broken cords, exposed wires and the like).
(2) bulbs (dust on outside and carbon on inside).

(f) smoking
(1) cigarettes or pipe.

(g) spontaneous combustion
(1) rags (oil, turpentine and benzine).

(h) inflammables
(1) extractions.
(2) distilling volatile solutions.

2. DISEASE HAZARDS
(a) pipetting
(1) pathological materials (neglecting to plug pipettes.

(b) rubber hose

(1) pathological materials (neglecting to plug pipettes). related in which a hose attached to a water faucet, came in contact with a virulent material, the water back suctioned and took some of the material in to the general water supply which was distributed, as was evidenced by several cases and a death recorded from this one hazard).

(c) inhalation

(1) cultures (where there are spores as in mycological specimens, there are known cases of infection with cocciodies from the bad practice of smelling the cultures).

(2) fur (working with animals and inhaling the fur and other contaminats).

(d) animals

(1) direct or indirect inocculation with contaminated organs and claws.

3. WATER HAZARDS

(a) on floors and work tables

(1) fractures (burns and cuts from broken glass if carrying acids).

(2) faucets or hot water bath.

(3) broken water connections (do you know where to shut off the water supply in case of broken plumbing, or do you need to summon the maintenance man?).

4. GLASSWARE HAZARDS

(a) broken glassware in soapy water.

(b) glassware left on towels or cloths.

(c) glassware on the floor.

(d) capillary pipettes for coagulations.

5. MENTAL HAZARDS. Foreword. Although little thought has been given to this subject it is generally accepted that worry and hurry are contributing factors to the cause of accidents. Listed they are:

(a) physical hazards

(b) physical fatigue

(c) overwork

(d) improperly fitted clothing and shoes
(e) insufficient sleep and rest
(f) poor health
    (1) dental care
    (2) mal-nutrition
    (3) defective eyesight

PREVENTION

An ounce of prevention being worth a pound of cure, adopt the slogan: "KEEP YOUR MIND ON YOUR WORK." Remember the possibilities of an accident from fires and explosions from the Bunsen burner. Do not reach across a flame unless you are fireproof. Having more than one room for laboratory experiments, permits the simultaneous performance of tests which require open flame and those requiring chemicals that are inflammable. Proper ventilation. Pipetting—with the Caulfield pipettor there is no alibi for pipetting accidents. Never permit the water supply to become contaminated. DO NOT INHALE by smelling cultures. Wear masks or filters and rubber gloves while posting animals. Keep the skin free from open cuts, abrasions and burns. When water is spilled on the floor or table top, *wipe it up*, and do not forget to wipe the edge of the table. Test the temperature of the water from the faucet before washing your hands. Do not place large quantities of glassware in the laundry water at one time, to prevent chipping and then cutting your fingers with the chips. Have each piece of glassware washed separately and inspected for possible chips. Furthermore these chips and nicks can be prevented to a great degree by careful handling and is much more economical. Glassware breakage is the largest item of expense in laboratory equipment. Why anyone should have the habit of leaving glassware on a towel and then absentmindedly pick up the towel to wipe something or to use as a holder and scatter glass all over the laboratory is more than can be explained, except as poor habits in housekeeping technique.

Knowing that worry and hurry are contributors to accidents, why not learn to relax? You wonder at the audacity of this question when doctors and nurses are waiting patiently and otherwise for the report of a test. There is such a thing as taking your time but

hurrying. This can be accomplished by thoughtful procedures, full knowledge of techniques and, KEEPING YOUR MIND ON YOUR WORK. Inexperienced workers are, or should be prohibited from the laboratory. Yet there are many hospitals that employ a medical technologist and an untrained assistant. The M.T. is too busy to properly train the helper. Serious accidents have resulted from this inexperienced handling of solutions, culture materials, etc. Is there any other profession that requires and expects any *ONE* person to do the various complicated techniques that fall to a laboratory technician? Educational institutes will not permit more than a certain number of subjects to be carried at one time, yet the laboratory technician has to execute accurately 8 to 10 different procedures at one time. Interruptions in the laboratory are sabotage and lack of consideration for the technician. With the whole world in a mental turmoil the laboratory worker must perform beyond what is required by duty. With the inevitable possibility of overwork and physical fatigue, the laboratory worker must learn to take at least three minutes of the day and sit very quietly, think of nothing and relax. When you feel stuporous and numb from fatigue, which is actually oxygen hunger, go to an open window and inhale deeply of fresh air and blow out the stale air, you will surprise yourself at the pick-up. Many technicians state that they do not have time for regular check-ups regarding their eyes and teeth, but where there is need there is always a way.

In this time of tension, uncertainty, overtime, overwork and mental and physical fatigue, shortage of doctors, crowded hospitals —it is our PATRIOTIC DUTY as Americans and laboratory technicians to learn to keep fit.

ABSTRACTS

THE USE OF PENICILLIN SODIUM IN THE TREATMENT OF SULFONAMIDE-RESISTANT GONORRHEA IN MEN: J. F. Mahoney, C. Ferguson, M. Buchholtz & C. J. Van Slyke, Am. Jr. Syph., Gon. & Ven. Dis., vol. 27, No. 5, Sept., '43, p. 525.

This preliminary report deals with 75 males hospitalized for sulfonamide resistant gonorrhea. Therapy consisted of 16 intramuscular injections each of 10,000 Florey units of penicillin sodium over a period of 45 hours.

Though the "posttreatment" period has not yet been sufficiently long to give a final estimate, 72 of the 75 are symptom-free, one is classed as a therapeutic failure, one as a clinical relapse and the status of the 75th cannot be definitely established at present.

It is suggested that the treatment period might be shortened to 15 hours using a smaller total amount of drug. The possibility of producing sensitization to the drug cannot be established but the case considered a therapeutic failure was retreated without evidence of sensitization. Practically no toxicity was observed.

RELATION OF ASCORBIC ACID TO CHRONIC ARTHRITIS: E. F. Traut & F. L. Matousek, Proc. Inst. Med. Chi., vol. 14, No. 16, Oct. 15, '43, p. 467.

Eighteen patients were studied. Five had hypertrophic arthritis with average ascorbic acid levels of 1.64 mgs. Thirteen had atrophic arthritis with average ascorbic acid levels of 1.84 mg. The ascorbic acid levels of a healthy medical student and of 17 non-arthritic patients averaged 1.23 mgs.

Eight patients with low levels were given 100 mgs. ascorbic acid daily to maintain levels above 1 mg. for at least one month. No benefit was apparent.

The authors conclude that "low ascorbic acid levels in the serum are not characteristic of chronic arthritis and restoring the ascorbic acid levels to normal does not result in improvement of the arthritis."

THE PHOSPHATASE REACTION AS AN AID TO THE IDENTIFICATION OF MICRO-ORGANISMS USING PHENOLPHTHALEIN PHOSPHATE AS SUBSTRATE: J. Bray & E. J. King, Jr. Path. & Bact., vol. 55, No. 3, July '43, p. 315.

The degree of phosphatase activity is reported for many of the common organisms. Results were found consistent for many strains of the same organism.

Medium used:

1 part nutrient broth
4 parts liquid egg (fresh or water-glass preserved)
Shake and filter through muslin.

Prepare the phenolphthalein phosphate solution by grinding in a mortar in the proportion of 0.1 g. to 1 cc. of distilled water. Add a drop of capryllic alcohol to prevent frothing.

One cc. of this suspension is pipetted into each plate without allowing the powder to settle. 25 cc. of the egg mixture are added and thoroughly mixed with the phenolphthalein phosphate. The plates are placed in an inspissator with a disc of filter paper in the lid to absorb moisture. They are inspissated two consecutive days and stored in the refrigerator.

For the test the plates are inoculated in the usual way and incubated at 37°C. for 18 hours or longer. Plates are examined for growth and then inverted over a Petri dish containing a concentrated solution of ammonia. A red color develops in positive cultures. The exposure needed varies from just a whiff to 30 sec. The depth of color is read in plus values. Smears are made to exclude contaminants. As far as was determined, it was possible to subculture from a plate after exposure to the ammonia for the necessary length of time.

THE PLASMA PROTEINS IN DISSEMINATED LUPUS ERYTHEMATOSUS: A. F. Coburn & D. H. Moore, Bull. Johns Hopkins Hosp., vol. 73, No. 3, Sept. '43, p. 196.

Thirty patients varying in age from 6 to 48 yrs. were studied. All gave rapid sedimentation rates, usually even more rapid than in acute infections. This was found to be due to large increases in serum globulins. The total protein was usually within the normal but the albumen-globulin ratio was frequently reversed. This inver-

sion was found to follow rather than precede development of symptoms. It also improved with return to a quiescent state.

None of these patients gave clinical evidence of syphilis but 11 gave positive Wassermann and 13 positive Kline tests. These results fluctuated from week to week from negative to 4 plus and also anti-complementary.

The globulin increase was found to be chiefly in the gamma fraction. This is the fraction which reacts with the Wassermann and Kline antigens.

AN AGGLUTINATION TEST FOR THE SEROLOGICAL DIAGNOSIS OF SYPHILIS: F. M. Berger, Jr., Path. & Bact., vol. 55, No. 3, July '43, p. 363.

A detailed description is given for preparing the material and carrying out this technique. A suspension of collodion particles is prepared according to Loeb's method and sensitized with Kahn standard antigen. Qualitative and quantitative methods are described. The tests are carried out in test tubes and read after centrifuging.

A group of known syphilitic sera were all found positive with the agglutination method but only 66 and 67% were positive with the Kahn and Wassermann techniques. Non-specific reactions were no more frequent than in the other methods. Factors causing false negatives in the Wassermann test do not influence the agglutination test.

This technique is suggested as a very sensitive prosumptive test.

THE ROLE OF RIBOFLAVIN IN BLOOD REGENERATION: H. Spector, A. R. Maass, L. Michaud, C. A. Elvehjem & E. B. Hart, Jr., Biol. Chem., vol. 150, No. 1, Sept. '43, p. 75.

Dogs were fed a synthetic ration containing the crystalline B vitamins but excluding riboflavin. Deficiency symptoms appeared with poor food consumption and little or no growth in the young dogs. Mild anemia developed and if there were even small amounts of blood drawn, severe anemia developed readily. Recovery did not occur without riboflavin. A microcytic, hypochromic type of anemia was found. When riboflavin was fed, phlebotomy produced a normocytic, hypochromic anemia. The size of new red cells is influenced by the amount of riboflavin injected.

BOOK REVIEWS

WHITE BLOOD CELL DIFFERENTIAL TABLES: By Theodore R. Waugh, B.A., M.D., C.M., Associate Professor of Pathology, McGill University Faculty of Medicine, Montreal, Pathologist-in-Chief, Royal Montreal Homeopathic Hospital. Appleton-Century Co., Inc., New York. Pp. 126. Price, $1.60 single copy; 10 or more copies, $1.50 per copy.

This volume contains within its 126 pages enumeration and differential counts for white blood cell levels ranging from a total of 10 to 10,000 per cubic millimeter. It provides a means for computing rapidly the actual number per cubic millimeter for each type of blood cell as derived from the precalculated differential percentages.

The few pages of explanation discuss the preferable methods for controlling the calculation of the total white blood count and procedures for making the differential with the least error.

In summary, 109 tables with approximately 70,000 individual numbers are arranged to permit the determination of the exact number of the given white blood cells practically at a glance, thereby avoiding the tedious task of multiplying the various percentages of the differential by the total count.

SOVIET HEALTH CARE IN PEACE AND WAR: By Rose Maurer. American Russian Institute for Cultural Relations with the Soviet Union, Inc., 1943, New York 19, New York. Pp. 48. Price, 10 cents.

This book records the status of public health administration, medical education, drug manufacture, research, et cetera, prior to the Nazi attack on Soviet Russia, and continues with a discussion of the accomplishments of medical care during the war in Russia.

The author has supplied interesting statistics and subject matter on medical service in the Soviet Union, description of the organization, method of operation, and the means of administration with results accomplished. In health statistics the booklet relates that

cholera, typhus and smallpox have been almost completely eliminated from Russia and these were the chief causes of mortality in a population of 170-odd million people. The Soviets regard this improvement in public health as due to compulsory preventive measures offered without charge.

It is particularly interesting to review the section on medical research and to find that there are 1,500 scientific institutions in the Soviet Union staffed by 34,000 scientists and 50,000 other employees. The accomplishments of this large force of researchers are referred to in Part 2—in general terms—to evaluate their achievements. It is said that "new medical preparations are discovered by many of the research institutes" which may be true but the Soviet Union has not shared them with us, according to the reviewer's knowledge, since he is aware of most of the accomplishments in the development of medical specialties in the past three decades.

CLINICAL DIAGNOSIS BY LABORATORY EXAMINATIONS: By J. A. Kolmer, M.D., Professor of Medicine and the School of Dentistry of Temple University; Director of the Research Institute of Cutaneous Medicine. D. Appleton-Century Co., Inc., New York. Pp. 1239. Price $8.00 postpaid, 1943.

This new book by a well known man of medicine embraces an extensive range of subject matter, from compositions of the blood, to diagnostics of disease by chemistry, skin tests and interpretations of examinations of saliva and sputum. There is a special chapter on toxicology of common poisons, another on mycologic examinations, and a third on biopsy examination.

In addition to the diagnostics by examination of the usual systems there is a section on Hormones and Vitamins describing their nature and clinical significance together with tests for such of either as have been devised.

The book is divided into three parts, the first being interpretations of laboratory procedures for the clinician, the second describes the practical application of laboratory test methods while the third

section of 130 odd pages contains specific descriptions of technic.

Inasmuch as all the systems are covered in this volume it is at once a text on general medicine, immunology, bacteriology, metabolism, clinical and laboratory diagnosis and finally a ready reference book to modern practice. The reviewer has no knowledge of another single volume combining so much material of interest to so many.

The book contains 179 illustrations, some in color, 137 diagnostic summaries and an index that gives ready access to the subject matter.

NEWS AND ANNOUNCEMENTS

W. K. KELLOGG FOUNDATION

Below is a list of the schools which have received to date a grant from the Kellogg Foundation for the training of medical technologists. Most of them requested the maximum of $4,000, but a few asked for less. Grants are not given to individuals, but to schools on the approved list of the American Medical Association.

Alabama—Alabama College
Arizona—Arizona State Teachers College
Colorado—University of Colorado, University of Denver
District of Columbia—American University, George Washington University
Georgia—Emory University
Idaho—University of Idaho
Illinois—Northwestern University
Indiana—Butler University, Indiana University
Kansas—University of Kansas, University of Wichita
Kentucky—University of Kentucky, Nazareth College
Louisiana—Loyola University of New Orleans
Michigan—Wayne University, Western Michigan College of Education
Minnesota—Hamline University, University of Minnesota
Missouri—Drury College, St. Louis University
Montana—College of Great Falls, Montana State University
Nebraska—University of Nebraska
New York—University of Buffalo, Adelphi College, Skidmore College
North Carolina—Duke University
Ohio—Ohio University, University of Toledo, Western Reserve University

Pennsylvania—Albright College, Jefferson Medical College, Moravian College for Women, Temple University
Tennessee—Meharry Medical College, University of Tennessee
Texas—Texas Christian University
Utah—Brigham Young University, University of Utah
Washington—State College of Washington
Wisconsin—Marquette University
Wyoming—University of Wyoming

MISSISSIPPI

The Medical Technologists in Vicksburg, Miss., organized a local group several months ago, the meetings being held once a month. Formerly, the meeting included dinner in the local hotel, with meeting proper following. The attendance averaged twelve technologists. Attendance fell off somewhat and reorganization affected a more compact group. Now, meetings are held monthly with an average of six, with occasionally as many as ten present. The meetings are followed by very informal discussions of the highlights of work and problems in the month past.

This organization is notable in that it is the very first activity in the state of Mississippi by Medical Technologists.

The Medical Technologists in Vicksburg include five A.S.C.P.'s, three non-registered and seven student Medical Technologists in an A.S.C.P. school here.

The New Jersey Society of Medical Technologists held their annual meeting November 20, 1943, at the Academy of Medicine of Northern New Jersey. The following program was presented:

1:00 P. M. Registration
2:00 P. M. The Laboratory Diagnosis of Trichomonas Vaginalis
Dr. Herman Shelanski, University of Pennsylvania
3:00 P. M. The Laboratory Importance of the Rh Factor
Dr. Philip Levine, Pathological Labs,
Newark Beth Israel Hospital
4:00 P. M. The Blood Bank
Dr. Frank Konzelmann, Dept. of Pathology,
Temple University Medical School

5:00 P. M. Business Meeting
6:00 P. M. Dinner
7:30 P. M. The Laboratory Aspects of Tropical Diseases
Major Alfred Golden, M.C., Army Medical Museum

Officers

President ..... Marian Baker DeSantis
Vice President ..... Lillian Baeder
Corresponding Secretary ..... Elsie Emmel
Recording Secretary ..... Jesse Thatcher
Treasurer ..... Julia Goeller
Executive Committee .....
Margaret Harris, Pauline Holbert, Phyllis Stanley
Program Chairman ..... Phyllis Stanley

AMERICAN HEALTH LEADERS WARN OF POSTWAR EPIDEMIC DANGER TO HEMISPHERE

Health leaders from all the American republics, alert to the postwar danger of epidemics to the welfare of the American continent, are calling upon their colleagues throughout the hemisphere to adopt suitable cooperative measures to protect the Americas from widespread illness after the war.

Messages to this effect already have been received by Dr. Frank A. Calderone, Deputy Health Commissioner of New York and Publicity Chairman of the Wartime Emergency Conference of the American Public Health Association, which recently met in New York.

Dr. Calderone announced that pleas for adequate protective measures had been received from leaders of the public health services of Cuba, Colombia, Panama, Mexico, Haiti and the Dominican Republic. He characterized the appeals as "forthright" and emphasized that they were aimed at showing the mutual nature of the problem "to be solved by all the Americas only through the medium of mutual assistance."

"These forceful requests that such a health program be set into action are too intimately tied up with our own safety to be ignored," he added. "A new current of thinking is fast spreading through

all the world; the realization that the health of one country is interdependent on the health of all other countries. Inevitably, such thinking must produce higher health standards for those who have not been as fortunate as the people of the United States, and perhaps even force a new awareness of the need for improvement in our own health program."

A similar thesis was presented by Dr. Alfonso Orozco, Secretary General of the Department of Labor, Health and Social Welfare of Colombia. Dr. Orozco called upon the American Public Health Conference "to spread the idea that protection of health is a global enterprise of international character because of the inevitable repercussions on all countries of the continent of the appearance of disease in any one country."

From Dr. Alberto Recio, Director of Health and Social Welfare of Cuba, came this message: "It will be necessary to face epidemiological contingencies all the more urgently as international relations are intensified. Circumstances will force all civilized countries, whatever their internal political structure, to devise new methods and enter into new agreements in public health matters."

Haiti, through Jules Thebaud, its Director General of Hygiene and Public Welfare, voiced a similar warning in the following words:

"May the Americas continue to fulfill the obligation that is incumbent on each and every one of them to raise strong barriers of scientific prevention against the introduction within their boundaries of epidemic diseases occurring in the postwar period."

The broad outlines of cooperative health measures to protect the Americas from the danger of disease from abroad were traced by Dr. Guillermo Garcia de Paredes, Director of Health for Panama. Said he:

"The urgency of unified action in facing those problems which have to do with the basic health of the civilian population and the greatest well-being of the armed forces demands the broadening of the point of view of all health programs sponsored by the democratic governments to insure the physical health of our peoples today, and construct a foundation of well-being in a world that is healthy and vigorous."

Dr. Dario Contreras, Secretary of State for Public Health and

Welfare in the Dominican Republic, made this observation:

"Today, statisticians and doctors have more reason than ever to believe that after the war we may be faced with another scourge; a pandemic outbreak or general weakening of the health of the people, equally dangerous to conquered and conquerors. In the face of such a danger, we must give priority to all measures now indicated as preventative against the recrudescence of epidemic diseases."

Mexico's Dr. Victor Fernandez Manero, Director of Public Health, voiced the sentiments of his colleagues everywhere in the American republics when he said:

"May the Pan-American ideal, the greatest of American ideals, be more than political and economic. May it also be an ideal of life and vigor which will provide us with greater resources for fulfilling our duty as citizens and members of a humanity embittered by worry and anxiety."

The establishment of the first center for the scientific study and development of physical medicine as a branch of medical practice was announced today by Basil O'Connor, President of The National Foundation for Infantile Paralysis. The center will be in the Graduate School of Medicine of the University of Pennsylvania at Philadelphia.

To set up this center, Mr. O'Connor stated, The National Foundation for Infantile Paralysis has made a grant totaling $150,000 for a five-year period from January 1, 1944, to December 31, 1948.

Mr. O'Connor said, "We believe this to be one of the most important steps which the National Foundation has taken. This will not only advance the treatment of infantile paralysis, but of many other diseases as well."

Mr. O'Connor explained that today there are only a few schools or departments connected with any of the medical training centers which is equipped to explore thoroughly on a sound scientific basis the possibilities of physical medicine.

This is but the first step in a program which, Mr. O'Connor said, should afford a scientific basis for physical therapy and lead to the establishment of a more desirable teaching program.

"If this branch of medicine can be given a sound professional

standing," Mr. O'Connor declared, "medical men of the highest calibre will be attracted to it and practitioners will fully utilize its advantages. If research and study show there is little or no basis for treatment by some of the physical agents, then an equally great service will have been rendered, even though it be principally negative in character.

"Physical medicine plays a most important part in the treatment of infantile paralysis. Since it was first organized, The National Foundation has been continuously concerned with this phase of treatment. It has spent during the past six years over $350,000 to educate and train physical therapy technicians. An additional $364,000 has been granted to laboratories and universities to study many problems in physiology and medicine having a close connection with the practice of physical therapy, but never before has it been possible to combine in one place both medical research and teaching in this important field."

The Center for Research and Instruction in Physical Medicine will include:

1. A center for development of physical medicine as a scientific part of the practice of medicine.

2. A training center for medical leaders and teachers in this branch of medicine, and

3. A school for training technical workers under the guidance of such professional and scientific leadership, such a school to be only incidental to and dependent upon the first two purposes.

The Departments of Anatomy, Physiology, Pathology and other basic sciences of the University of Pennsylvania will cooperate in this proposed program. The general direction will be assigned to Dr. Robin C. Buerki, Dean of the Graduate School of Medicine.

The American Society of Medical Technologists will probably hold a meeting in 1944. Do you know of anyone interested in having an exhibit?_____ Would you want booth space for an exhibit?_____ Please send the name and address of a possible exhibitor to the committee. For further details *watch* this space. Cecelia M. Kortuem, M.T. (ASCP), Exhibits Committee Chairman.

STATE AND LOCAL SOCIETIES

THE COLORADO SOCIETY OF MEDICAL TECHNOLOGISTS
Affiliated with
AMERICAN SOCIETY OF MEDICAL TECHNOLOGISTS
1944

Regular meetings: First Thursday of each month.

OFFICERS

Allyne E. Lawless, M.T. (ASCP).....President
Effie Melching, M.T. (ASCP).....Vice-President
Dorothy Stotts, M.T. (ASCP).....Recording Sec'y.
Frances Kelly, M.T. (ASCP).....Treasurer
Edna Mains, M.T. (ASCP).....Corresponding Sec'y.
2432 West Argyle Place, Denver, Colo.

Notes about coming meetings: A one day convention will be held in May or June. Papers prepared by members of the Colorado Society will be presented at the morning session. Doctors will be invited to present papers and topics of interest to the Medical Technologist at the afternoon session. Evening: formal banquet.

The Colorado Society of Medical Technologists is sponsored by Doctor E. R. Mugrage. Dr. Mugrage is head of Pathology at the University of Colorado, School of Medicine.

SAVANNAH SOCIETY OF MEDICAL TECHNOLOGISTS
Affiliated with
AMERICAN SOCIETY OF MEDICAL TECHNOLOGISTS
1944

Regular meetings: First Tuesday of each month.

Programs:

January—Subject: "Malarial Research and Yellow Fever."
Speaker: Lieutenant Earl Arnold, U.S.P.H.S.

February—Subject: Discussion and Demonstration with Rh Factor.
Speaker: Mrs. Ida Brown, R.N., M.T. (ASCP).

March—"Identification of Intestinal Parasites, including Cultures."
Speaker: Captain N. J. Wiener, U. S. Army.

April—Subject: "Comparison of Techniques for the Determination of Total Proteins in Blood Serum."
Speaker: Miss Mary D. Newton, M.T. (ASCP), U.S.P.H.S.

May—Subject: "Co2 Combining Power of Blood."
Speaker: Miss Barbara Freeman, M.T. (ASCP).

June—Subject: "G. C. Cultures and Donovan Bodies."
Speaker: Dr. Ralph B. Hogan, U.S.P.H.S.

OFFICERS

Sadie Cartweight, M.T. (ASCP).....President
Jurelle S. Hooper, M.T. (ASCP).....Secretary and Treasurer
206 East 56th Street, Savannah, Georgia.

Send communications regarding State and Local societies to Cecelia M. Kortuem, 1165 N. Dearborn, Chicago 10, Ill.

SERVICE ROLL

Members of the American Society of Medical Technologists in the service of their country:

Lt. Col. Arthur T. Brice
Major J. A. Wood
Major Theodore Keiper
Capt. Walter J. Dell
Ralph M. Carrel, 1st Lt. SnC
Lt. Timothy L. Duggan
Frederick W. Hindley, 1st Lt. Sanitary Corps.
Lt. Margaret E. Johnston, W.A.C.
Lt. Margaret M. Nichols
Lt. Wm. J. Noble, Jr., Sn. C.
Lt. Margaret M. Petritz
Nelson E. Brown, Ph.M 1/cU.S.N.
Ensign Dorothy L. Chandler, W.V.(S) U.S.N.R.
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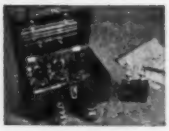

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REGISTRY OF MEDICAL TECHNOLOGISTS
OF THE
AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS

NOTICE

The closing date for the spring examination of applicants for registration will be:

March 1, 1944

If there are students in your laboratory who plan to take this examination, please urge them to get their applications in the Registry office by that date. This applies whether the student is studying in an approved school or by the apprenticeship method. Blanks may be obtained by writing to:

Mrs. Ruth Drummond
Registry of Medical Technologists
Ball Memorial Hospital
Muncie, Indiana